

## Protein Synthesis (Central Dogma)

 <http://www.youtube.com/watch?v=h3b9ArupXZg>

DNA → RNA → Protein Synthesis

- your DNA contains the instructions on how your cells are to assemble amino acids into proteins
- these instructions must first be passed onto a molecule called RNA which will then take the message to a ribosome to produce a certain protein from amino acids

- amino acids - organic chemicals, they link together to form proteins
- there are 20 amino acids in your body which can be assembled in an unlimited number of ways to form proteins
- codon is a 3 base code for amino acids each triplet represents a different amino acids -- ex *GCA* or *CCG*

Alanine

Arginine

## The Structure of RNA

RNA consists of a long chain of nucleotides.

Each nucleotide is made up of a 5-carbon sugar, a phosphate group, and a nitrogenous base.

There are three main differences between RNA and DNA:

- The sugar in RNA is ribose instead of deoxyribose.
- RNA is generally single-stranded.
- RNA contains uracil in place of thymine.

A-U  
G-C

nitrogen bases

- there are 3 main types of RNA:

mRNA (messenger RNA) - reads the code from the DNA molecule and takes the code to the ribosome to be read

tRNA (transfer RNA) - transports the amino acids needed to make the protein that is coded for

rRNA (ribosomal RNA) - will order the amino acids in the proper sequence when they arrive at the ribosome.